the analyzer 50, handle 1105 is a T-handle latch, such as those available from Southco, Inc. of Concordville, Pennsylvania. The drawer 1104 is mounted in the lower chassis on slide brackets (not shown) so that the drawer 1104 can be pulled into and out of the lower chassis. A sensor (not shown) is preferably provided for verifying that the drawer 1104 is closed. The front portion of the drawer includes bottle receptacles 1122 for holding bottle 1128 (shown in FIGURE 52), which is a dedicated pipette wash waste-containing bottle, and bottle 1130 (also shown in FIGURE 52), which is a dedicated waste bottle for containing waste from a magnetic wash, target-capture procedure. Bottle 1130 is preferably evacuated.

The analyzer 50 will not begin processing assays if any of the bottles required in the lower chassis 1100 are missing. Bottle receptacles 1122 preferably include bottle-present sensors (not shown) to verify the presence of a bottle in each receptacle 1122. The bottle-present sensors are preferably diffuse reflective type optical sensors available from SUNX/Ramco Electric, Inc., of West Des Moines, Iowa, model EX-14A.

Right-side drawer 1104 further includes a waste bin 1108 for holding therein spent MTUs and specimen tips. Waste bin 1108 is an open box structure with a sensor mount 1112 at a top portion thereof for mounting thereon a sensor, preferably a 24VDC Opto-diffuse reflector switch (not shown), for detecting whether the waste bin 1108 is full. Another diffuse reflector type optical sensor (not shown) is positioned within right-side drawer 1104 to verify that the waste bin 1108 is in place. Again, diffuse reflective type optical sensors available from SUNX/Ramco Electric, Inc., of West Des Moines, Iowa, model EX-14A, are preferred.

A deflector 1110 extends obliquely from a side of the waste bin 1108. Deflector 1110 is disposed directly below a chute through which spent MTUs are dropped into the waste bin 1108 and deflects the dropped MTUs toward the middle of the waste bin 1108 to avoid MTU pile-ups in a corner of the waste bin 1108. Deflector 1110 is preferably pivotally mounted so that it can pivot upwardly to a substantially vertical position so that when a waste bag, which lines the waste bin 1108 and covers the deflector 1110, is removed from the waste bin 1108, the deflector 1110 will pivot upwardly with the bag as it is pulled out and therefore will not rip the bag.

A printed circuit board (not shown) and cover 1114 can be mounted to the front of the waste bin 1108. Sensor mounts 1116 and 1117 are also mounted to the front of waste bin 1108. Sensors 1118 and 1119 are mounted on sensor mount 1116, and sensors 1120 and 1121 mounted on sensor mount 1117. Sensors 1118, 1119, 1120, and 1121 are preferably DC capacitive proximity sensors. The upper sensors 1118, 1119 indicate when the bottles 1128 and 1130 are

full, and the bottom sensors 1120, 1121 indicate when the bottles are empty. Sensors 1118-1121 are preferably those available from Stedham Electronics Corporation of Reno, Nevada, model number C2D45AN1-P, which were chosen because their relatively flat physical profile requires less space within the tight confines of the lower chassis 1100 and because the Stedham sensors provide the desired sensing distance range of 3-20 mm.

The analyzer 50 will preferably not begin performing any assays if the assay manager program detects that any of the waste fluid containers in the right-side drawer 1104 are not initially empty.

The capacitive proximity sensors 1118-1121 and the bottle-present, waste-bin-present, and waste-bin-full optical sensors of the right-side drawer 1104 are connected to the printed circuit board (not shown) behind cover 1114, and the printed circuit board is connected to the embedded controller of the analyzer 50.

Because the right-side drawer 1104 cannot be pulled completely out of the lower chassis 1100, it is necessary to be able to pull the waste bin 1108 forward so as to permit access to the waste bin for installing and removing a waste bag liner. For this purpose, a handle 1126 is mounted to the front of the waste bin 1108 and teflon strips 1124 are disposed on the bottom floor of the right-side drawer 1104 to facilitate forward and backward sliding of the waste bin 1108 in the drawer 1104 when bottles 1128 and 1130 are removed.

Details of the left-side drawer 1106 are shown in FIGURE 54. Left-side drawer 1106 includes a box-like structure with a front mounted handle 1107 and is mounted within the lower chassis 1100 on slide brackets (not shown). Although handle 1107 is shown as a conventional pull-type drawer handle, in the preferred embodiment of the analyzer 50, handle 1107 is a T-handle latch, such as those available from Southco, Inc. of Concordville, Pennsylvania. A sensor is provided for verifying that the left-side drawer 1106 is closed.

Left-side drawer 1106 includes a tiplet waste bin 1134 with a mounting structure 1135 for mounting thereon a tiplet-waste-bin-full sensor (not shown). A tiplet-waste-bin-present sensor is preferably provided in the left-side drawer 1106 to verify that the tiplet waste bin 1134 is properly installed. Diffuse reflective type optical sensors available from SUNX/Ramco Electric, Inc., of West Des Moines, Iowa, model EX-14A, are preferred for both the tiplet-waste-bin-full sensor and the tiplet-waste-bin-present sensor.

Bundling structures 1132 are provided for securing and bundling various tubing and/or wires (not shown) within the lower chassis 1100. The bundling structures preferably used are Energy Chain Systems manufactured and sold by Igus, Inc. of East Providence, Rhode Island.

A printed circuit board 1182 is mounted behind a panel 1184 which is located behind the tiplet waste bin 1134. A solenoid valve mounting panel 1186 is located below the tiplet waste bin 1134.

Left-side drawer 1106 includes a forward container-holding structure for holding therein six similarly sized bottles. The container structure includes divider walls 1153, 1155, 1157, and 1159 and container blocks 1151 having a curved bottle-conforming front edge, which together define six container-holding areas. Lower sensors 1148 and upper sensors 1150 (six of each) are mounted on the divider walls 1155, 1157, and 1159. The upper and lower sensors 1148, 1150 are preferably DC capacitive proximity sensors (preferably sensors available from Stedham Electronics Corporation of Reno, Nevada, model number C2D45AN1-P, chosen for their flat profile and sensing range). The upper sensors 1150 indicate when the bottles held in the container structure are full, and the lower sensors 1148 indicate when the bottles are empty. In the preferred arrangement, the left two bottles 1146 contain a detecting agent ("Detect I"), the middle two bottles 1168 contain silicon oil, and the right two bottles 1170 contain another detecting agent ("Detect II").

Bottle-present sensors (not shown) are preferably provided in each of the container-holding areas defined by the container blocks 1151 and the dividing walls 1153, 1155, 1157, and 1159 to verify the presence of bottles in each container-holding area. The bottle-present sensors are preferably diffuse reflective type optical sensors available from SUNX/Ramco Electric, Inc., of West Des Moines, Iowa, model EX-14A.

A large centrally located container receptacle 1164 holds a bottle 1140 (shown in FIGURE 52), preferably containing deionized water. Container receptacles 1166 (only one is visible in FIGURE 54) hold bottles 1142 and 1144 (also shown in FIGURE 52) preferably containing a wash buffer solution. A dividing wall 1143 between the receptacle 1164 and 1166 has mounted thereon sensors, such as sensor 1141, for monitoring the fluid level in the bottles 1140, 1142, and 1144. The sensors, such as sensor 1141, are preferably DC capacitive proximity sensors (preferably sensors available from Stedham Electronics Corporation of Reno, Nevada, model number C2D45AN1-P).